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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/615,591	07/09/2003	James Thornsberry	2334-213	8288

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EXAMINER

CHANG, VICTOR S

ART UNIT	PAPER NUMBER
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1771

DATE MAILED: 04/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/615,591

Applicant(s)

THORNSBERRY ET AL.

Examiner

Victor S. Chang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 10 February 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) 14-19 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 1/5/2004.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 1-13, drawn to a laminated foam board, classified in class 428, subclass 304.4.
  - II. Claims 14-19, drawn to a method of making a closed-cell foam board, classified in class 156, subclass 60+.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions Group I and Group II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product as claimed can be made by another and materially different process such as foamed boards made with adhesive layers between foam core and facers.
3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.
4. After a telephone conversation with Warren Burnam on 2/7/2005, a reply of election and preliminary amendment was received on 2/10/2005, in which Applicants have provisionally elected the invention of Group I, claims 1-13 without traverse.

Affirmation of this election must be made by applicant in replying to this Office action.

Claims 14-19 are withdrawn from further consideration by the examiner, 37

CFR 1.142(b), as being drawn to a non-elected invention.

5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

### ***Specification***

6. The cross-reference in the first paragraph of the specification needs to be updated.

### ***Claim Objections***

7. Claim 3 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

More particular, it is noted that newly amended claim 1 now recites *inter alia* limitation "A laminated foam board ... formed from a polyurethane modified polyisocyanurate foam ...", which renders the same limitation in claim 3 redundant.

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicants' admission in view of DeGuisseppi (US 4335218) in view of Davis (US 4351873), and evidenced by Zamek et al. (US 4607103), and Kiso et al. (US 4460709) or Taylor (US 4544477).

In the specification, Applicants appear to have admitted that cellular organic plastic foams used for thermal insulation are well known in the art. Such foams can be made with urethane linkages (i.e., polyurethane foam), or made with a combination of both isocyanurate linkages and urethane linkages (i.e., polyurethane modified polyisocyanurate foam), etc. (specification, page 1, lines 14-16). It is known art that facers are used to form laminated foam board (page 1, line 23; page 2, line 9; page 4, lines 24-25). Finally, Applicants stated that a mixture of methyl esters of 59% glutaric, about 20% succinic, and about 21% adipic acid is a dipolar aprotic organic solvent is a commercially available solvent, also known as "Di-Basic Esters", or DBE, from DuPont (page 5, lines 8-12; page 6, lines 7-14).

For claims 1, 3 and 4, Applicants' admission is silent about the foam core being close-celled, and the use of DBE in the foaming mixture to promote the bonding strength between two aluminum foil facers and a foam core. Regarding the foam core

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being close-celled, it noted that Davis' invention is directed to a double faced insulation board, and Davis teaches that it is conventional for insulating polyurethane or polyisocyanurate foam boards of the having a core of rigid closed cell foam material (column 2, lines 43-45). As such, in the absence of unexpected results, it would have been obvious to one of ordinary skill in the art of insulating foam board to use a close-celled foam core, as taught by Davis, motivated by the desire to obtain a cell structure which provides required thermal insulation properties. Regarding the use of DBE foaming mixture, it is noted that DeGuisseppi teaches a process to obtain an improved adhesion between laminated skin (i.e., facer) and polyisocyanurate foam core by incorporating a dipolar aprotic organic solvent into the reaction mixture employed to prepare the polyisocyanurate foam core (abstract). Examples of facer materials include aluminum sheet (i.e., aluminum foil) (column 3, line 1). A suitable amount of the dipolar aprotic organic solvent is from about 1 wt% to about 10 wt% based on total weight of the foam forming mixture (column 2, lines 1-16; column 8, lines 6-9). As such, since DBE (i.e., a mixture of methyl esters of 59% glutaric, about 20% succinic, and about 21% adipic acid) is a known dipolar aprotic organic solvent, as evidenced by Zamek who describes DuPont DBE as a polar organic solvent free of active hydrogen atoms (column 4, lines 41-48), and Kiso who describes esters are aprotic dipolar solvents (column 6, lines 56-57), or Taylor who also describes esters as dipolar solvents (column 12, line 33), in the absence of unexpected results, it would have been obvious to one of ordinary skill in the art to incorporate a small amount of DBE in a foaming mixture of Applicants' admitted prior art, as taught by DeGuisseppi, motivated by the desire to

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obtain improved adhesion between the facers and the foam core. Additionally, it should also be noted that DBE meets the definition of being a "dipolar aprotic organic solvent" disclosed by DeGuisseppi. Specifically, DeGuisseppi teaches that a "dipolar aprotic organic solvent" is a solvent which cannot donate a suitably labile hydrogen atom or atoms to form strong hydrogen bonds with an appropriate species (or to react with a polyisocyanate) (column 2, lines 34-39).

For claim 2, it is noted that the specification lacks a specific definition of what constitutes a "polyurethane foam". However, Applicants do have admitted that a thermal insulating foam of a combination of both isocyanurate linkages and urethane linkages (i.e., polyurethane modified polyisocyanurate foam) is known art. As such, in view of the fact that the urethane and isocyanurate linkages are combined in the foam, it is the Examiner's position that the known art reads on "polyurethane foam" as claimed.

For claims 5 and 6, the Examiner notes that polyol and polyisocyanate are inherent components for forming urethane linkages, and polyisocyanate is an inherent component for forming isocyanurate linkage. Regarding the product-by-process recitation "wherein said mixture is added at an add-on rate ...", the Examiner notes that a process limitation must be evidenced as effecting the structure or chemistry of the resultant product over the prior art. In the absence of evidence to the contrary, this limitation at the present time has not been given patentable weight in the present product claim. See MPEP § 2113.

For claim 7, Applicants admitted that pentane is a known blowing agent (specification, page 4, line 20).

For claim 8, although DeGuisseppi is silent about the peel strength, DeGuisseppi does teach that the amount of the dipolar aprotic organic solvent can be increased within a suitable range to ensure a success in promoting adhesion (column 2, line 20). As such, in the absence of unexpected results, it would have been obvious to one of ordinary skill in the art to adjust the amount of dipolar aprotic organic solvent in the foaming mixture, as taught by DeGuisseppi, motivated by the desire to obtain a suitable peel strength.

For claims 9-13, since they claim the same scope of elements and limitations as claims 1-8, they are also rejected for the reasons as set forth above.

### ***Conclusion***

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Victor S. Chang whose telephone number is 571-272-1474. The examiner can normally be reached on 8:30 - 5:00.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel H. Morris can be reached on 571-272-1478. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.



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Victor S Chang  
Examiner  
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4/14/2005